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ASSIGNMENT BOOKLET
Mathematics 8
Unit 5 Assignment

FOR STUDENT USE ONLY	
Date Assignment Submitted: _____	(If label is missing or incorrect) Student File Number: _____
Time Spent on Assignment: _____	Module Number: _____

FOR OFFICE USE ONLY

Assigned Teacher: _____

Assignment Grading: _____

Graded by: _____

Date Assignment Received:

Student's Questions and Comments

Apply Module Label Here

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Please verify that preprinted label is for correct course and module.

Teacher's Comments

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Teacher

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- Are all the assignments completed? If not, explain why.
- Has your work been reread to ensure accuracy in spelling and details?
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Mathematics 8

Learn EveryWare

Unit 5

Percent, Ratio, and Rate

Assignment Booklet

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Summary

	Total Possible Marks	Your Mark
Lesson 1	16	
Lesson 2	33	
Lesson 3	22	
Lesson 4	19	
Lesson 5	28	
Lesson 6	22	
Lesson 7	23	
	163	

Teacher's Comments

Mathematics 8
Unit 5: Percent, Ratio, and Rate
Assignment Booklet
ISBN 978-0-7741-3143-8

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This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	
General Public	
Other	

You may find the following Internet sites useful:

- Alberta Education, **http://www.education.gov.ab.ca**
- Learning Resources Centre, **http://www.lrc.education.gov.ab.ca**
- Tools4Teachers, **http://www.tools4teachers.ca**

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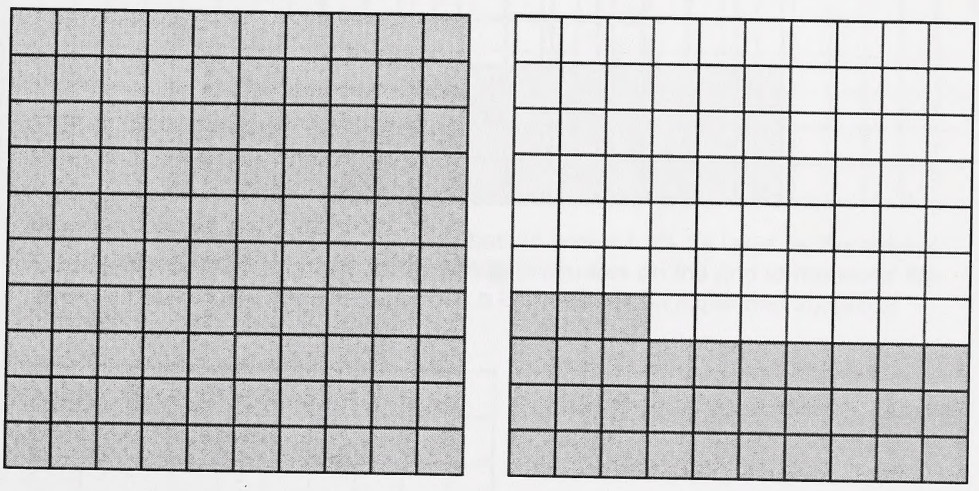
UNIT 5 ASSIGNMENT BOOKLET

The value of each assignment and each question is stated in the left margin.

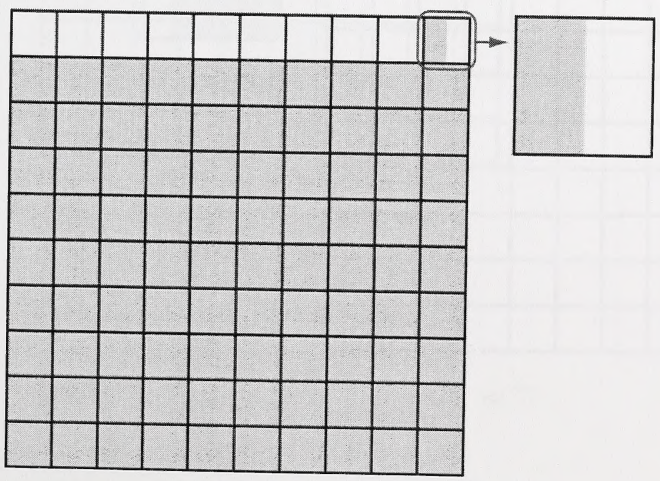
Unit 5: Lesson 1 Question Set

(4 marks) 1. One fully shaded grid represents 100%. What percent does each diagram represent? Mark your response under each diagram.

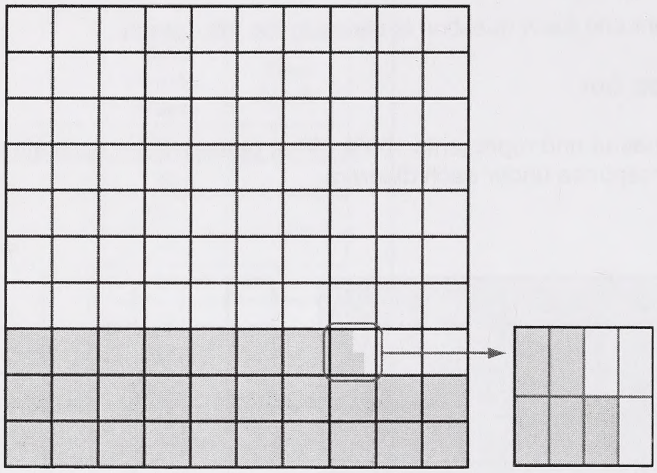
a.



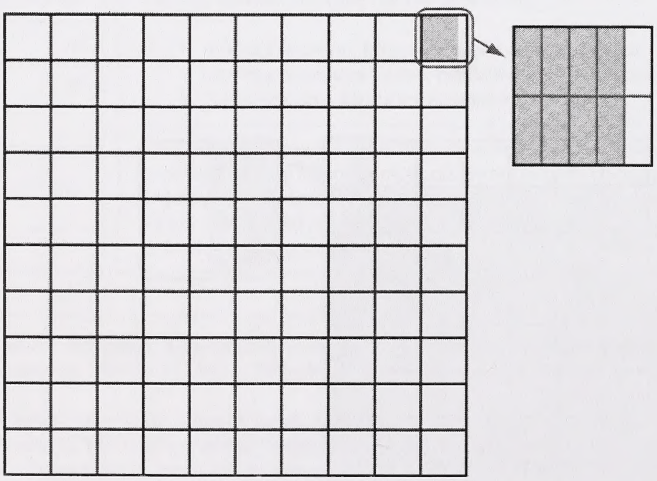
b.



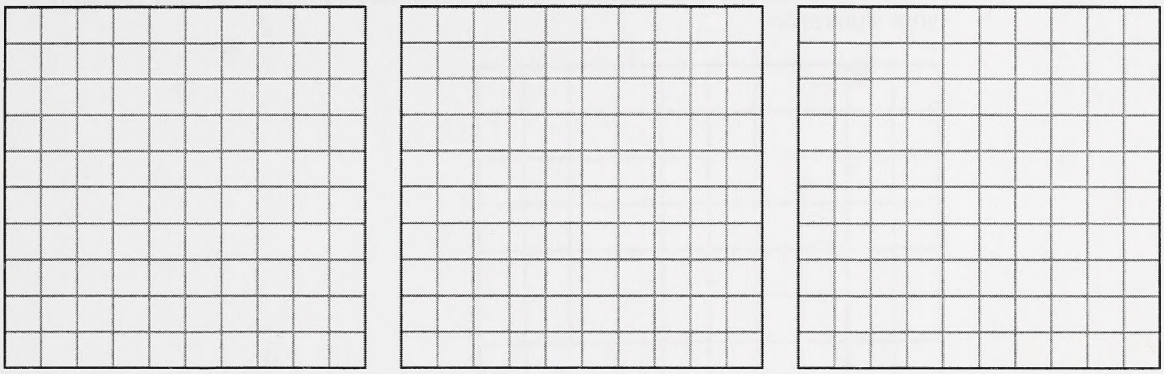
c.



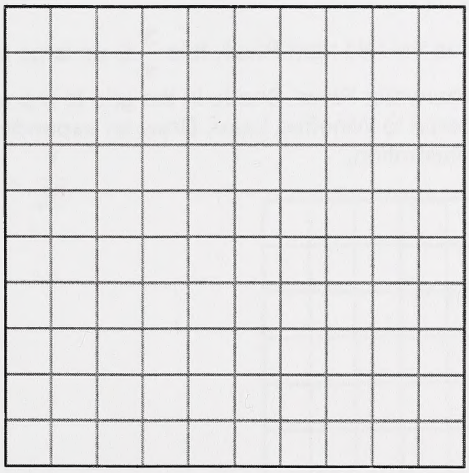
d.



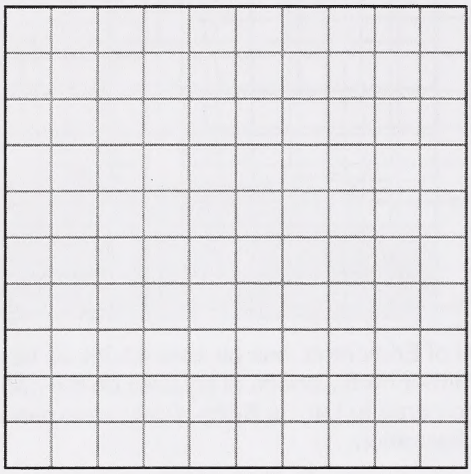
(3 marks) 2. Gull Lake, west of Wetaskiwin, has an area 121% as large as Lake Newell, located south of Brooks. Shade in squares to represent the area of Gull Lake compared to Lake Newell.



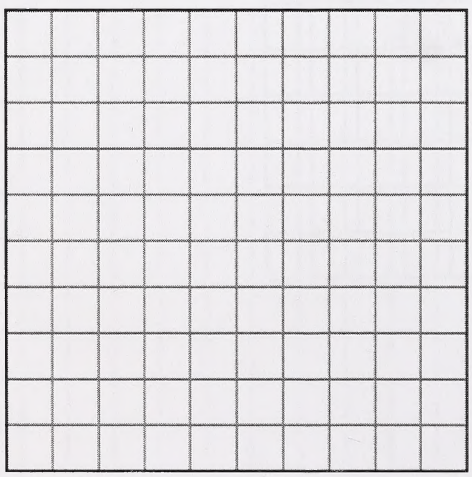
(3 marks) 3. Pigeon Lake, southwest of Edmonton, has an area 41.3% as large as the area of Lac La Biche, located farther north. Shade in squares on the grid to represent the area of Pigeon Lake compared to Lac La Biche. Draw an expanded square, if needed, to clarify your illustration.



(3 marks) 4. Payne Lake, near Waterton in the southwest corner of Alberta, is $\frac{1}{5}$% as large as Lesser Slave Lake. Shade in the grid to represent how the area of Payne Lake compares to Lesser Slave Lake. Draw an expanded square, if needed, to clarify your illustration.



(3 marks) 5. Beauvais Lake drains into the Old man River. It is $\frac{3}{4}$% as large as Winefred Lake, which drains into the Clearwater River. Shade in the grid to represent how the area of Beauvais Lake compares to Winefred Lake. Draw an expanded square, if needed, to clarify your illustration.



Unit 5: Lesson 2 Question Set

(8 marks) 1. Convert each fraction to a decimal and to a percent.

a. $\frac{5}{8}$

b. $\frac{9}{16}$

c. $\frac{1}{25}$

d. $\frac{17}{4}$

(8 marks) 2. Convert each decimal to a percent and to a fraction in its lowest terms.

a. 0.44

b. 0.06

c. 1.45

d. 0.0025

(8 marks) 3. Convert each percent to a decimal and to a fraction in its lowest terms.

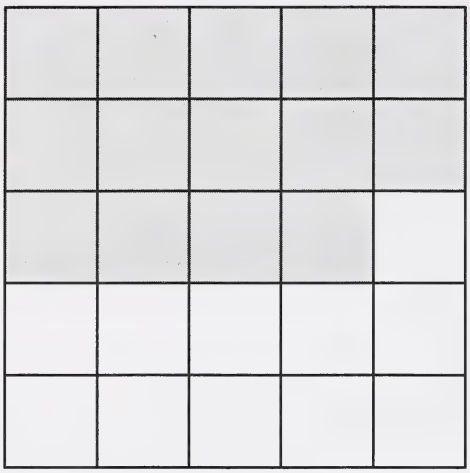
a. 8%

b. 0.3%

c. 85%

d. 125%

(3 marks) 4. Use the following diagram to answer the question.



a. Express the shaded portion of the diagram as a fraction.

b. Express the shaded portion of the diagram as a decimal.

c. Express the shaded portion of the diagram as a percent.

(3 marks) 5. In 2008, the estimated population in Alberta was 3.58 million people. The estimated population of Canada at that time was 33.11 million. What percentage of the people in Canada lived in Alberta? Round your answer to the nearest tenth of a percent.

(3 marks) 6. Wabamun Lake, west of Edmonton, has an area of 81.8 square kilometres. The area of Beaverhill Lake, located to the east of Edmonton, is 139 square kilometres. The area of Beaverhill Lake is what percent of the area of Wabamun Lake? Round your answer to the nearest whole number percent.

Unit 5: Lesson 3 Question Set

(6 marks) 1. Explain the steps necessary to mentally compute the following amounts.

a. $5\frac{1}{2}$% of 400

b. $\frac{1}{4}$% of 12 000

c. 120% of 3000

(6 marks) 2. Calculate the percent of each number.

a. 0.64% of 3500

b. $\frac{3}{5}$% of 25 000

c. 18.45% of 600

(2 marks) 3. The Teen Environmental Action Club expected to make 34.5% profit on the fabric grocery bags they sold. If the total sales were $21 510, what is the club's profit?

(2 marks) 4. The Teen Environmental Action Club did not sell 4.4% of their 15 000 bags. How many of the bags were not sold?

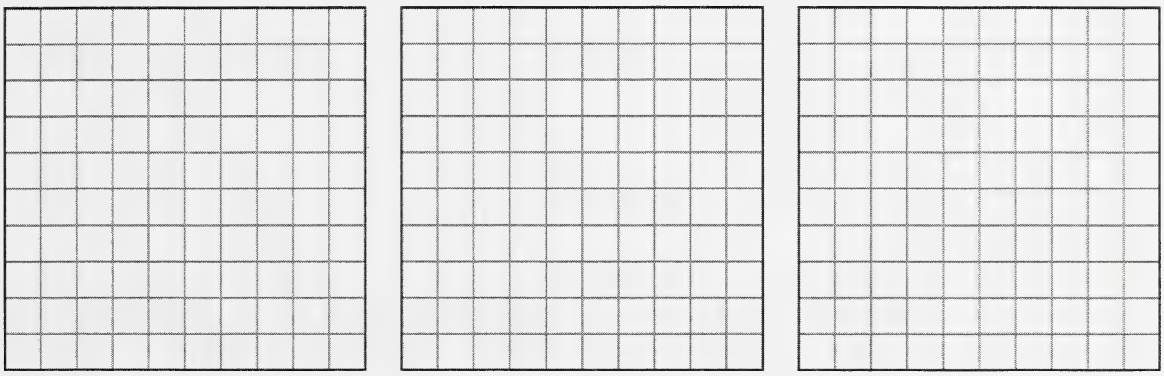
(2 marks) 5. The Teen Environmental Action Club found that retailers in the community distributed 126 400 plastic bags to customers in the past year. The club hopes the sale of reusable fabric bags will reduce that number by 40%. How many fewer plastic bags per year does the club hope to have in the community because of this project?

(2 marks) 6. Calgary's average rainfall is 300 mm during the summer. If one model of global warming predicts that the Prairies will receive 6.1% less rain during the summer in 30 years, how much less rain is Calgary predicted to receive?

(2 marks) 7. The average yearly snowfall in Edmonton is 123.5 cm. Lethbridge receives 105.7% as much snow as Edmonton. What is the average yearly snowfall in Lethbridge, measured to the nearest tenth of a centimetre?

Unit 5: Lesson 4 Question Set

(2 marks) 1. Karma lives in a province that has 6% PST. She also has to pay the 5% GST. One fully shaded grid represents 100%. To represent the percentage of the total cost of the item compared to its original listed price, shade in the squares below. You may or may not need to use all of the grids.



(3 marks) 2. While on vacation in another province, Amin purchased running shoes. The province he was in had 7% PST and 5% GST. The shoes cost $129.95. How much did Amin pay for the shoes once both taxes were added to the price?

(3 marks) 3. After their first month of practice, Soleil and her swim team reduced their 200-metre medley relay time of 164 seconds by 3%. After a second month, the team had shaved 2.5% off their reduced time. What was their medley relay time at the end of the second month?

(3 marks) 4. Zoë practises playing her cello for 20 minutes a day. She finds that it takes about 15% of her actual practice time to set up her music stand and cello and about 10% of her actual practice time to put it all away. How much total time should she plan for cello practice if she wants to be playing continuously for 20 minutes?

5. At the end of hockey season, Zane goes to a sports store to see what bargains are available. He finds a hockey stick normally listed at $69.99 with a sticker saying it now has a 20% discount. It is in a display that offers a further 10% off the sale price.

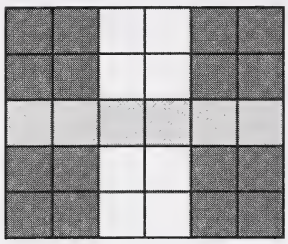
(3 marks) a. What will be the price of the hockey stick during this sale?

(2 marks) b. How much would Zane pay if the GST is 5% and the PST is 6%?

(3 marks) 6. A five-minute shower using a normal showerhead uses about 150 L of water. When a low-flow showerhead is installed, the volume of shower water used is only 56% of normal. If a homeowner installs an ultra-low-flow showerhead, shower water usage drops to 34% of the low-flow showerhead volume. What volume of water would an ultra-low-flow showerhead use during a five-minute shower? (Remember to round your answer to the nearest litre.)

Unit 5: Lesson 5 Question Set

(8 marks) 1. Thirty coloured tiles are arranged in the pattern below.



Express the following ratios in lowest terms:

a. red tiles to white tiles

b. black tiles to white tiles

c. black tiles to total number of tiles

d. black tiles to white tiles to red tiles

2. Peirce is studying the record of his favourite hockey team. Part way through the season, Peirce's favourite team has won 30 games, lost 25, and tied 5.

(2 marks) a. What is the team's win to loss record expressed as a two-term ratio in lowest terms?

(2 marks) b. What three-term ratio expresses the team's win, loss, and tie record in lowest terms?

(2 marks) c. Express the team's ratio of losses to games-played record as a fraction in lowest terms, as a two-term ratio, and as a percent.

(4 marks) d. If the team continues to keep the same win, loss, and tie ratio for the rest of the 82-game season, how many games can Peirce expect them to lose this season? (Make sure to round the answer to the nearest whole number.)

(6 marks) 3. Jillian is learning how to make pies using a recipe called Pop Pie Crust. The ingredients in the recipe for five double-crust pies are as follows:

- 1250 mL flour
- 450 g lard
- 30 mL salt
- 250 mL cold ginger ale

a. What is the ratio of flour to ginger ale in lowest terms?

b. What is the three-term ratio of flour to ginger ale to salt in lowest terms?

c. Jillian decides she just wants to make enough pie crust for one pie. What volume of salt will be needed?

(4 marks) 4. Using the Milk River aquifer example mentioned in the Get Focused section, the capping of 22 flowing wells saved enough water in a year to fill 20 dugouts. A dugout is a large earthen reservoir used on farms and ranches to store water used for livestock and irrigating crops.

a. What is the ratio of dugouts filled to wells capped in simplest terms?

b. Using that ratio, if 30 wells were capped, how many dugouts could be filled? (Make sure to round the answer to the nearest whole number.)

Unit 5: Lesson 6 Question Set

(3 marks) 1. Calculate the unit rate for the following situations to two decimal places.

a. Evan runs 400 m in 64.8 s.

b. Ada bicycles 28 km in 70 min.

c. Samuel earns $183.57 by working 14.5 h.

(3 marks) 2. Calculate the unit price for the following situations.

a. The price of four loaves of bread is $3.84.

b. A 2.73-kg bag of apples cost $3.00.

c. A 750-mL container of yogurt cost $4.65.

(4 marks) 3. The Tasman Glacier on South Island in New Zealand was 29.0 km long in 1990. New measurements in 2008 showed the glacier was now only 22.5 km long. What is the unit rate of retreat for that glacier?

(2 marks) 4. A mid-sized car travels 600 km on 51.84 L of fuel. What is the rate of fuel consumption in L/100 km?

(4 marks) 5. Becky was going for a trip to the United States and wanted to take $400 in US cash with her. She went to the bank and they charged her $516 of Canadian money for $400 of US money.

a. Assuming there were no additional fees, what was the conversion rate of Canadian dollars to US dollars on that day?

b. How much money in US dollars would the bank give her for $645 Canadian?

(4 marks) 6. The average flow rate of the Red Deer River is about 3000 cubic metres per minute.

a. Use the fact that there are 60 seconds in a minute to determine the average flow rate in cubic metres per second

b. During the winter, the Red Deer River needs to maintain a flow rate of 960 cubic metres per minute. What is the **ratio** of winter flow rate to average flow rate in lowest terms?

(2 marks) 7. If a steer calf gains 300 kg in 11 months, what is its average daily rate of gain? Assume the average length of a month is 30 days. Record your answer to three decimal places.

Unit 5: Lesson 7 Question Set

(3 marks) 1. Determine the values of the variables needed in each case to make the ratios equivalent.

a. $\frac{3}{5} = \frac{a}{40}$

b. $\frac{2}{3} = \frac{b}{27}$

c. $\frac{14}{23} = \frac{42}{c}$

(3 marks) 2. Determine the values of the variables needed in each case to make the rates equivalent. Be sure to include the units.

a. $\frac{24 \text{ m}}{5 \text{ s}} = \frac{96 \text{ m}}{a}$

b. $\frac{34 \text{ beats}}{b} = \frac{136 \text{ beats}}{60 \text{ s}}$

c. $\frac{c}{5 \text{ kg}} = \frac{\$3.50}{2 \text{ kg}}$

(3 marks) 3. On a map of the Northwest Territories, 4.0 cm represents 920 km. How far is it from Tuktoyaktuk to Fort Smith if the distance on the map is 6.0 cm?

(3 marks) 4. A breakfast cereal advertizes that it has 5 g of fibre in every 30-g serving. How much fibre would someone receive if he or she ate a 50-g serving of that cereal?

(3 marks) 5. Bulk cashew nuts are sold at $0.98 per 100 g. What is the price of 454 g (1 pound) of cashews?

(4 marks) 6. The Peyto Glacier mentioned in the Get Focused section lost 70% of its mass in 106 years. If the glacier continues to melt at that rate, how many more years will it take to completely disappear? Give your answer to the nearest whole number.

(4 marks) 7. At the 2008 Beijing Olympic Games in August 2008, Usain Bolt set two world records and was hailed as the "world's fastest man." His record times were 9.69 s in the 100-m race and 19.30 s in the 200-m race. The Jamaican sprinter doesn't consider the 100-m event to be his best race. If he could run the 100-m race at the same rate as he runs the 200-m race, how much faster would his time be?